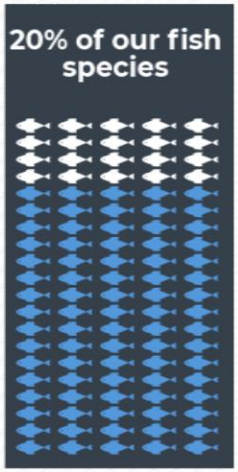
STATEWIDE ECOLOGICAL EXTINCTION TASK FORCE & DELAWARE NATIVE SPECIES COMMISSION

State Senator Stephanie Hansen, 10th Senate District

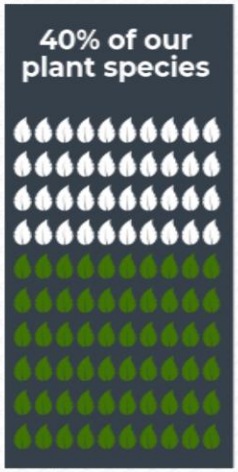
Establishment of the Statewide Ecological Extinction Task Force (SCR 20; 2017)

- **Bringing Nature Home; Prof. Douglas W. Tallamy (2009).**
- 41% of Delaware's bird species that depend on forest cover are rare or absent.
- 40% of all native plant species are threatened or already extirpated from DE.
- 31% of our native reptiles and amphibians have been lost.
- 20% of our native fish species have been lost.
- 50% reduction in population sizes for many of our bird species within a span of 50 years.

Delaware's native plant and animal species are disappearing.



* and amphibians



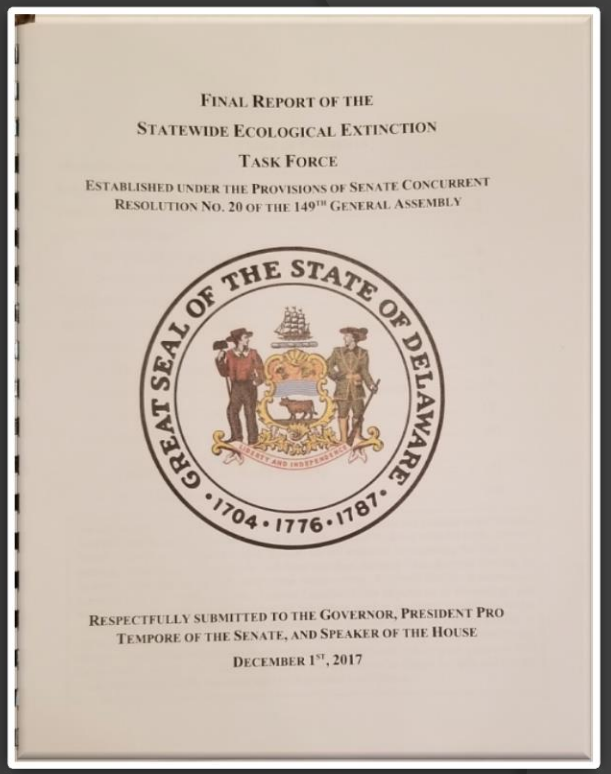
Members of the Task Force

- Legislators (Hansen, Heffernan, Richardson, Gray)
- All three Counties
- DNREC
- Dept. of Agriculture
- Center for the Inland Bays
- DE Association of Realtors
- DE Landscape & Nursery Association
- DE Farm Bureau
- UD Dept. of Entomology and Wildlife Ecology
- Homebuilders Assoc.
- DE Nature Society
- DE Nature Conservancy
- Delmarva Ornithological Society
- Delaware State Chamber of Commerce

Statewide Ecological Extinction Task Force Members

Front Row (L to R): Maria Evans, Kris Connelly, Bob Thornton, Sue Barton, Faith Kuehn, Joe Rogerson, Sen. Bryant Richardson; Back Row (L to R): Tracy Surles, Kathy Stiller, Rep. Debra Heffernan, Jim White, Sen. Stephanie Hansen, Ashley Kennedy, Matthew Sarver, Rep. Ronald Gray. Not pictured: Doug Tallamy, Michael Petit De Mange.

Task Force Work



FINAL REPORT OF THE
STATEWIDE ECOLOGICAL EXTINCTION
TASK FORCE
ESTABLISHED UNDER THE PROVISIONS OF SENATE CONCURRENT RESOLUTION NO. 20 OF THE 149TH GENERAL ASSEMBLY

GREAT SEAL OF THE STATE OF DELAWARE
•1704•1776•1787•

RESPECTFULLY SUBMITTED TO THE GOVERNOR, PRESIDENT PRO TEMPORE OF THE SENATE, AND SPEAKER OF THE HOUSE
DECEMBER 1ST, 2017

- Met 9 times between July 2017 and Nov. 2017
- Presentations and vigorous debate
- Agreement on >80 recommendations 9 categories
  - Education
  - Incentivizing Private Landowners
  - Government Leads by Example
  - Legislation Affecting Development
  - Funding Opens Space Program at Statutory Level
  - Prohibit the Sale of Invasive Species
  - Deer Management
  - Recovering America's Wildlife Act
  - Formation of the Delaware Native Species Commission
- Final Report dated Dec. 1st, 2017, available on General Assembly website


They're being replaced with non-native species that can't support our food supply.
Native (24%)
Non-native (76%)
Plants sold in local nurseries
Icon made by Freepik from www.flaticon.com
Much of our food chain, including 90% of insects, are specialists that rely on local organisms for survival.
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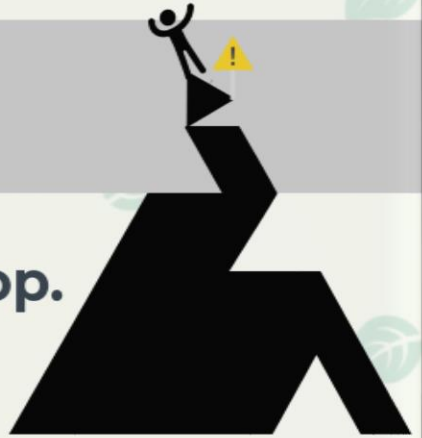
That's a big problem.

Because organisms at the bottom of our food chain...

...support organisms at the top.



Specialization is the Rule, not the Exception

- 90% of the insects upon which our ecosystem relies, can develop on only a few plant lineages in which they share an evolutionary history. These are our native plant species.

- Non-native plants do not supply the necessary food source for the insects in our ecosystem and invasive plants steal the food resources that exist.

  - “Pest-free” plants have been brought in from other parts of the world and our native insects do not recognize them.

  - Many have escaped cultivation and are replacing our native plants (kudzu, multiflora rose, autumn olive, burning bush, privet, English ivy, Bradford pear, empress tree, Japanese barberry, wisteria, etc.)

What's the Difference Between Food Sources for the Insects in our Ecosystem?

Native Plant Species

Non-native Plant Species

Invasive Plant Species

Native oaks, cherries, willows, birches, maples, elms, blueberries, alders, and pines produce about 75% of the insect food that drives food webs in Delaware.

Although we need to continue to protect existing wild lands, we must also encourage the ecological restoration of built landscapes throughout DE.

Take Aways from the Research

- There are few wild places left and what is left is too small and too fragmented to sustain biodiversity into the future. Therefore, urban, suburban, exurban, residential, corporate and public landscapes must be redesigned to enhance local ecosystem function rather than degrade it.

- Major drivers of extinction are habitat loss, habitat fragmentation, climate change, and displacement of native species by non-native and invasive species.

- Many species could live sustainably with us if we would design our living spaces to accommodate them.

How difficult is it to buy native plants?

- Native and Invasive Plants Sold by the Mid-Atlantic Nursery Industry;
  Mt. Cuba Center
  April 10, 2017, updated February 2018
- 14 Nurseries surveyed in MD, NJ, VA, and PA
- 6,885 different taxa of plants sold, with 75% of all taxa being non-native and only 25% being native.
- "Native" includes native species, cultivars of native species, and hybrids of native species.
- 4% of the taxa (26 species) were invasive or on the invasive watch list.
- Sen. Hansen Intern Researchers, Fall 2017
- 5 Delaware retail establishments surveyed (Willey Farms, Lowe's, Mid-County Material Supply and Garden Center, Home Depot, and Countryside Nursery)
- Referred to "Non-Native and Invasive Plants in Delaware", William McAvoy, 2016.
- 1,149 plant species, with 77% being non-native and 23% native.
- 4% of all species were invasive or on the invasive watch list.
- By number of plants sold, 83% were non-native, with 17% native.

Most Popular Invasives Among Growers

1. Chinese silver grass- *Miscanthus sinensis* (12/14)
2. Common periwinkle- *Vinca minor* (9/14)
3. Japanese barbery- *Berberis thunbergii* (8/14)
4. Burning bush- *Euonymus alatus* (6/14)
5. California privet- *Ligustrum ovalifolium* (6/14)
6. Bradford pear- *Pyrus calleryana* (6/14)
7. English ivy- *Hedera helix* (6/14)
8. Sweet autumn clematis- *Clematis terniflora* (6/14)
9. Japanese pachysandra- *Pachysandra terminalis* (5/14)

Chinese silver grass
Miscanthus sinensis

Common periwinkle - *Vinca minor*

Common periwinkle- *Vinca minor*

Japanese Barberry
Berberis thunbergii

Japanese Barberry
Berberis thunbergii

Burning Bush
Euonymus alatus

Bradford Pear

Pyrus caleryana

Bradford Pear
Pyrus caleryana

English Ivy
Hedera helix

English Ivy
Hedera helix

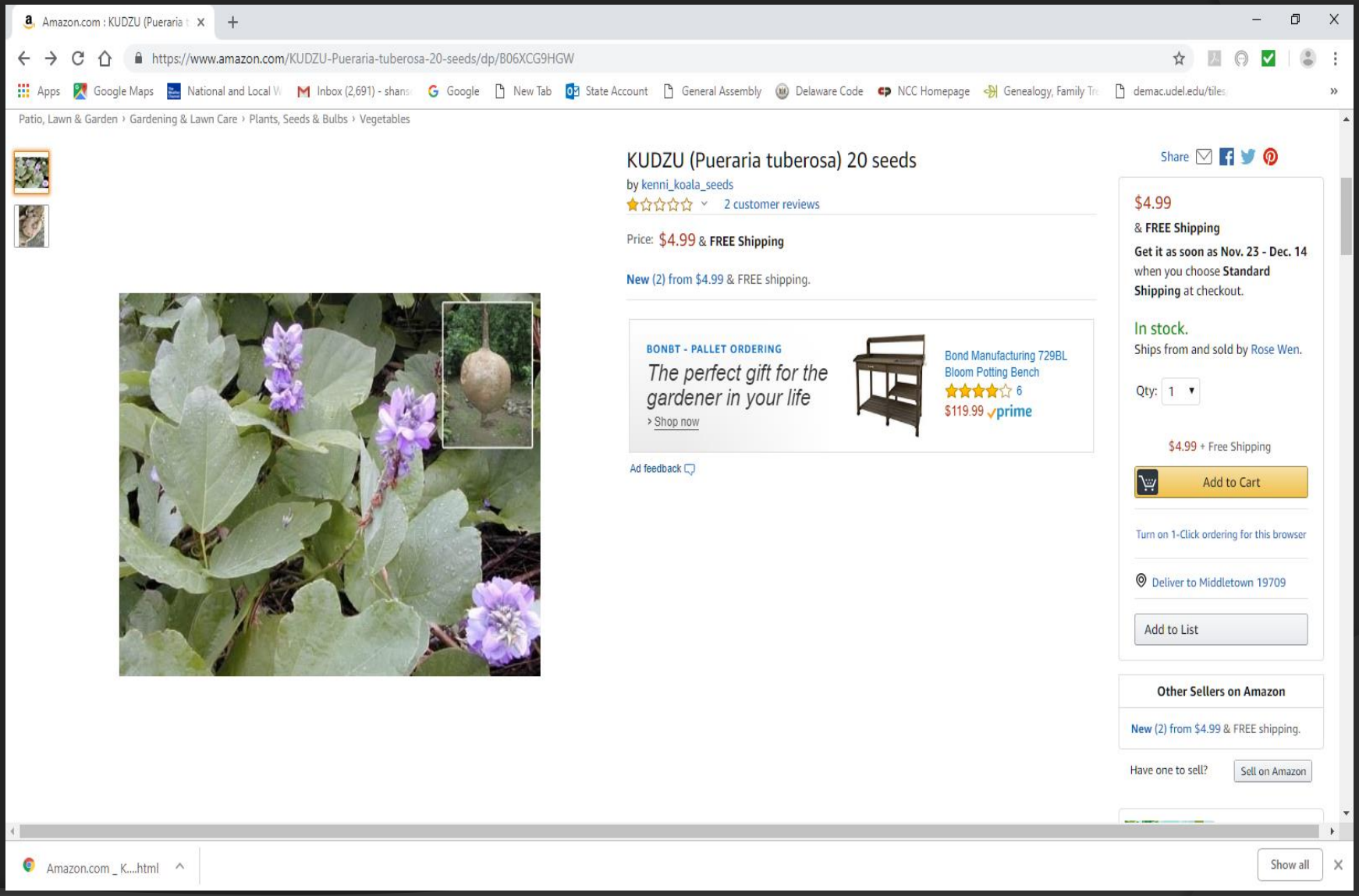
Japanese Pachysandra

Pachysandra terminalis

Japanese Pachysandra

Pachysandra terminalis

Invasives For Sale Online - Kudzu



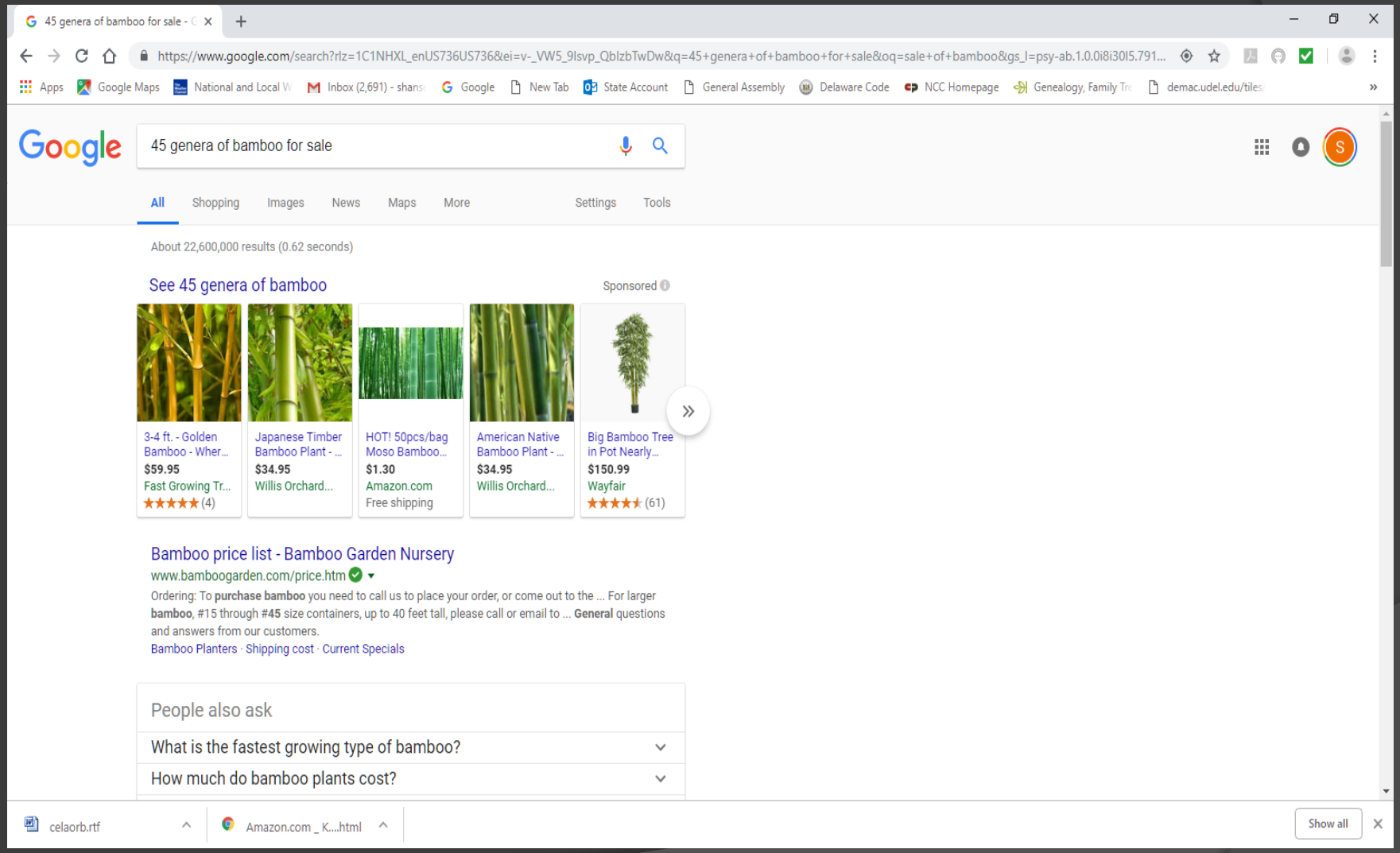
Kudzu along S. College Ave., Glasgow

Kudzu in Winter

- Once established, **kudzu grows** at a rate of one foot per day; mature **vines** can be 100 feet long. **Kudzu** was introduced into the U.S. at the 1876 Philadelphia Centennial Exposition. From 1935 to the mid-1950s, farmers in the South were encouraged to **plant kudzu** to reduce soil erosion.

- https://www.nature.org/en-us/about-us/where-we-work/united-states/indiana/stories-in-indiana/kudzu-invasive-species/

Invasives For Sale Online - Bamboo



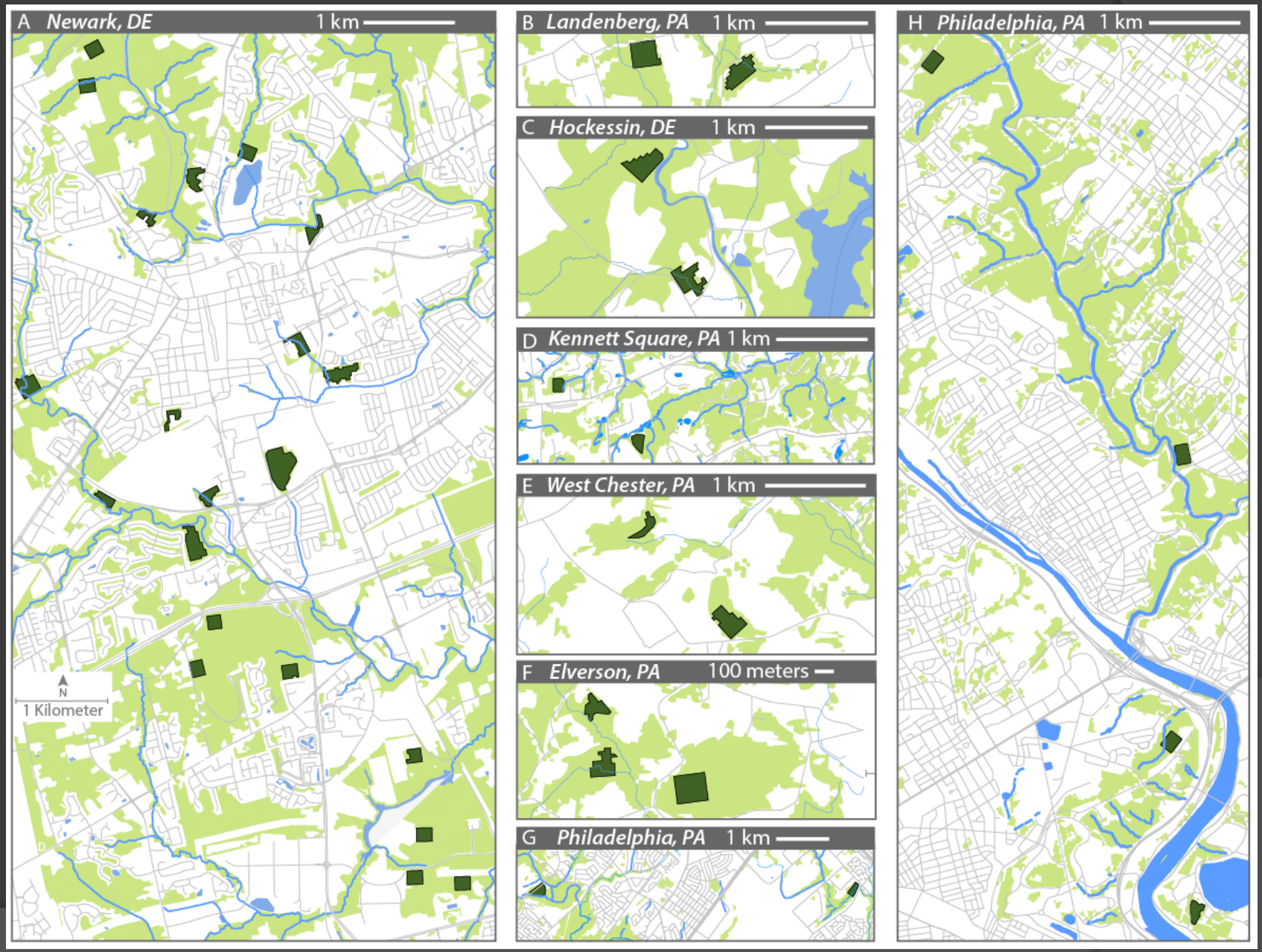
Bamboo along Frazer Road, Glasgow

Small Forest Plant Survey ("FRAME") Eastern U.S.

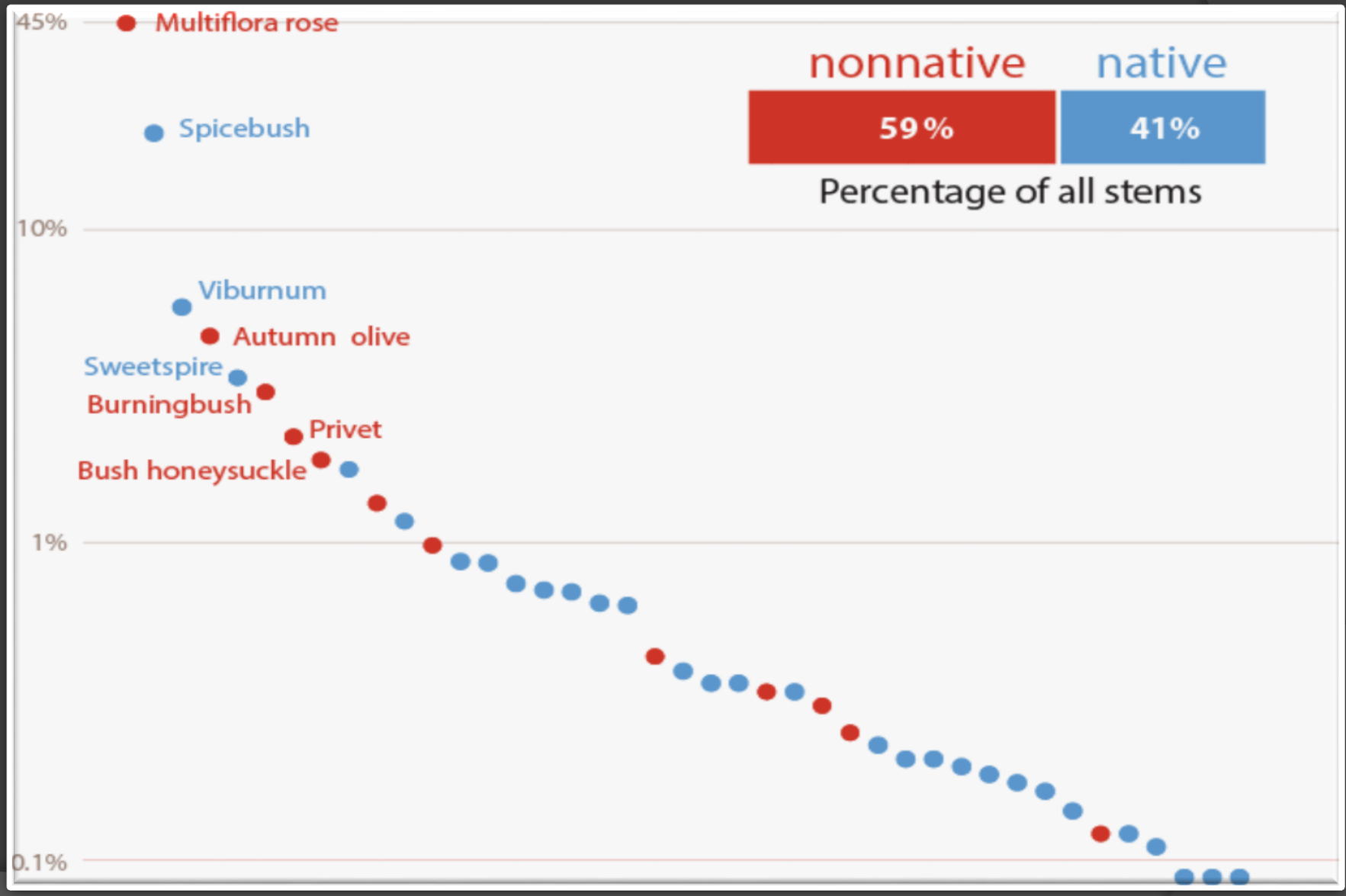
U.S. Forest Service & Univ. of Del.

- Vast majority of forests are smaller than a Best Buy parking lot.
- Most forests are regrowth from abandonment of prior use over last 150 years.
- USFS/UD studied 50 forests in DE/PA/NC
- Looked at overstory, understory, vertebrates, invertebrates, leaf litter, and soil chemistry

FRAME sites: 23 in DE, 15 PA, 12 NC



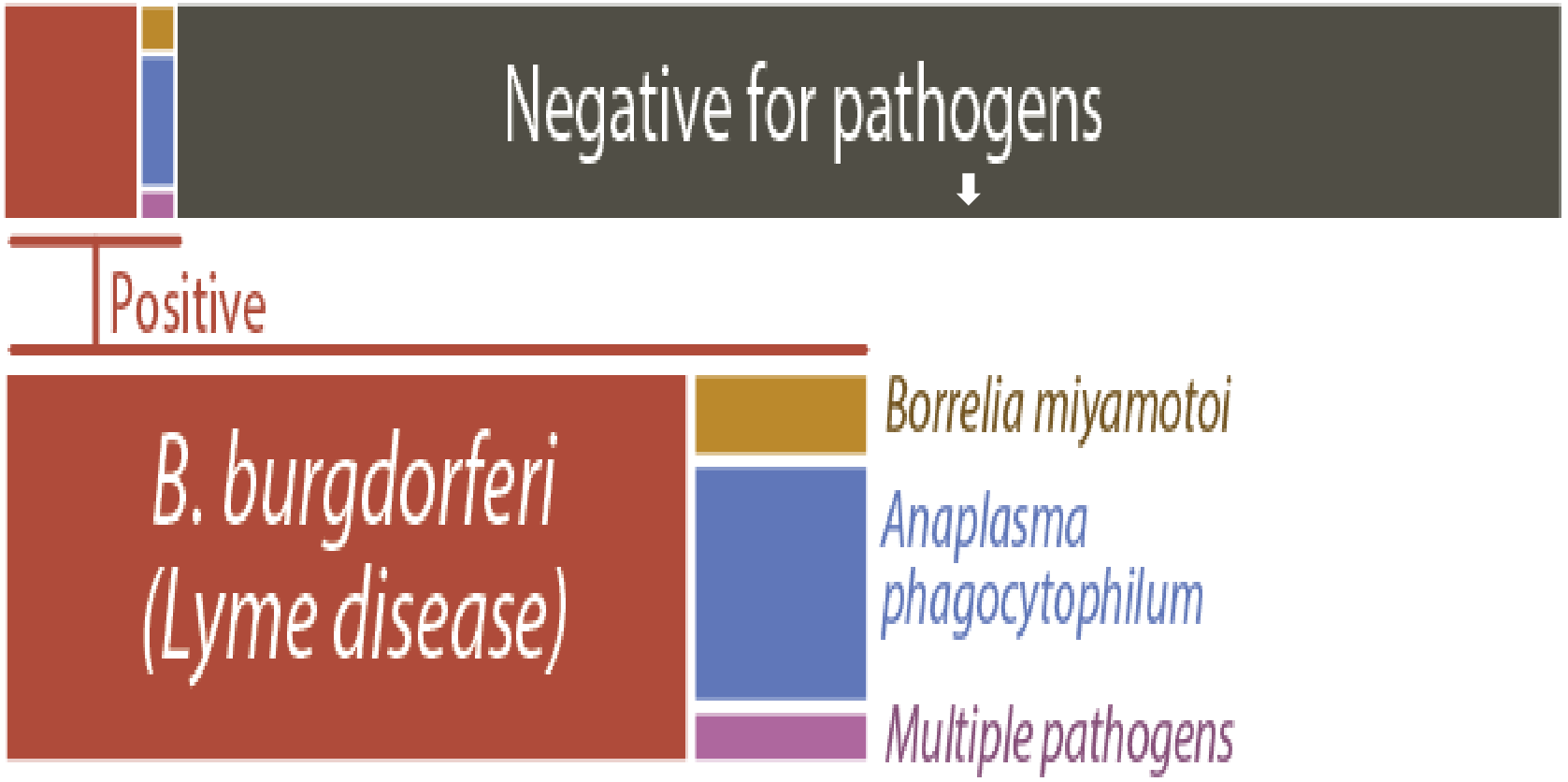
What Did They Find? Invaded Understories



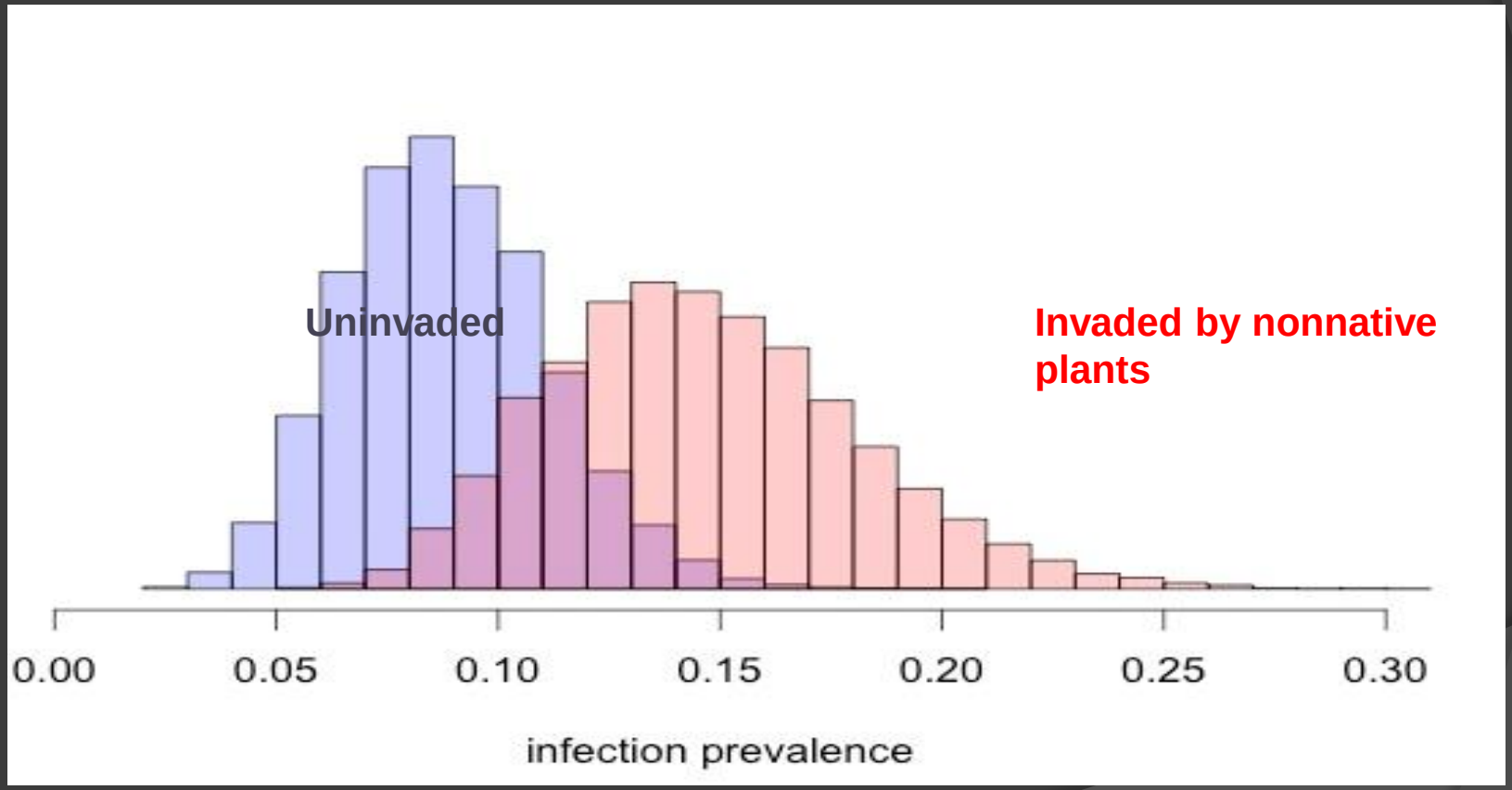
Invaded Understory – Primarily Multiflora Rose (*Rosa multiflora*)

Ticks were collected and tested for pathogens

Most tested negative, some did not.



In areas invaded by nonnative plants, more of the ticks contain pathogens, probably due to the types of hosts they are feeding on (mice vs. deer).



What Can I Do?

Understand the Crucial New Role of the Suburban Garden

- Education
  - Spread the word about the value of native species
  - Learn to identify invasive species (in and out of commerce)
- Inventory your own yard
  - Get rid of invasives
  - Replace with natives, where desired.
  - Ask for native plants at your retail store
- Look at your community's open space
  - Is it barren or overgrown with invasives?
  - Lead an effort to plant meadow/forest and remove invasives.

Garlic Mustard (Invasive)
Alliaria Petiolata

Learn the Language of your Neighborhood Ecosystem

- What we plant in our yards can influence what grows and thrives, or disappears and dies in our environment.
- What has been brought into our environment by our predecessors and bad governmental decisions in the past now influences our environment today.
- We can change the current course of displacement of our native species and rebuild our ecosystem, but it will take education regarding what belongs here and what does not.
- Some plants that we have become familiar with are bad for our ecosystem.
- Learn the stories of how invasive plants arrived here, what their effect has been, and how to get rid of them.

#1 Invasive Plant in Your Neighborhood Forest
Multiflora Rose (*Rosa multiflora*)

- Most of what you see in your neighborhood forest is Multiflora Rose. It is native to East Asia (Japan, Korea, and eastern China).
- It was introduced into North America many times since the late 1700s as garden plants and as root stock for ornamental roses.
- Forms dense thickets that invade pastures and crowd out native species (Munger 2002)
  - https://www.invasivespeciesinfo.gov/profile/multiflora-rose
- Before its invasiveness well understood, it was widely planted in the 1940s to 1960s in the eastern United States as a wildlife plant for erosion control and as a living fence.
  - https://wiki.bugwood.org/Archive:BCIPEUS/Rosa_multiflora

Why Is It Bad?

- Multiflora rose has invaded a large number of habitats, from hillside pastures, fence rows, right-of-ways, and roadsides to forest edges and the margins of swamps and marshes (Scott, 1965).
- A single, vigorous, mature plant can produce up to half a million achenes (seeds) annually. Where plants have become well established, a huge seed bank develops that can continue to produce seedlings for at least twenty years after removal of mature plants.
- Severe multiflora rose infestations have lowered land values for agriculture, forestry, and recreation (Underwood et al., 1996). Since the 1960s, multiflora rose has become one of the most noxious weeds in the eastern United States.
  - https://wiki.bugwood.org/Archive:BCIPEUS/Rosa_multiflora

Neighborhood Buffer – Southern NCC (March 2019)

Most of the greenery is Multiflora rose

Moving Forward

Formation of the Delaware Native Species Commission (SB 153)

- Meets bi-monthly, generally in Kent County; first meeting held July 31, 2017
- 15 Members, split evenly between government, environmental groups, and business.
- DNREC provides administrative support.
- Chair: Jim White (Delaware Nature Society)
- Contact: David Saveikis (David.Saveikis@state.de.us)

Top 10 Recommendations
Delaware Native Species Commission

- Distribution of a list of native plants and trees that are easy to grow in our area. **Education**

- Ban the sale of invasive plants in Delaware, allowing an appropriate phase-out period after legislation passes. (A) Invasive species are those on the Delaware Invasive Species Council plant list, as periodically amended. (B) The Delaware Invasive Species Council plant list must be reviewed and amended if necessary on a regular basis. **Legislation to Prohibit the Sale of Invasive Species**

- Educational material should be developed, tailored to the specific target audience, which will explain the benefit of native species as well as the effect of non-native and invasive species proliferation, and their contribution to the decline of our local species. **Education**

- Encourage the preservation of the remaining intact forest habitat (largest tracts should receive highest priority). **Incentivizing Private Landowners**

- All Delaware state facilities and departments should set the example, reducing lawn and replacing with native plants or pollinator gardens, and revising land management practices to be more pollinator friendly. **Government Leads by Example**

Top 10 Recommendations – Cont'd

- Encourage municipalities to adopt native landscaping in their codes. **Government Leads by Example**
- Encourage new public facilities to use native plants in landscaping. **Government Leads by Example**
- Encourage protection of Delaware's rarest plant communities such as Atlantic White Cedar Swamps, Coastal Plain Ponds, Interdunal Swales, Sea-level Fens, Piedmont Streamside Seepage Wetland, and Piedmont Tuliptree Rich Woods. **Legislation Affecting Development**
- Encourage all counties to adopt environmental design standards for development projects in order to protect key wildlife habitats and species of greatest conservation need (SGCN). **Legislation Affecting Development**
- Fund the Delaware Open Space Program at the level required by statute. **Fund Open Space Program at Statutory Level**

To find the best plants for your county, enter your zip code into the website below.

“Native Plant Finder” National Wildlife Federation

http://www.nwf.org/NativePlantFinder/